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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Oliver Luz

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EXAMINER

MURALIDAR, RICHARD V

ART UNIT

PAPER NUMBER

2838

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DELIVERY MODE

12/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/688,533	Applicant(s) LUZ ET AL.	
	Examiner RICHARD V. MURALIDAR	Art Unit 2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,6-8,10-12 and 15-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,6-8,10-12 and 15-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 6-8, 10-12, 15-18 and 19-22 are rejected under 35 U.S.C. 103[a] as being unpatentable over Marusak [U.S. 20040048142] in view of Larson [U.S. 6690140] in further view of Hatton [U.S. 5739737].

With respect to claim 1 [Currently Amended], Marusak teaches a vehicle electrical system [pars. 0001-0002] powered by a battery [Fig. 1 battery 12] to supply a plurality of loads [par. 0011 lines 1-4; par. 0033 lines 1-5; Fig. 2 power feed output connectors 80, 82, 84, 86], comprising: an integrated module [Fig. 1, power management and distribution assembly 10] positioned between a positive terminal of the battery and the plurality of loads [par. 0031 lines 1-5], the integrated module having: an arrangement for detecting a state of charge of the battery [par. 0010 lines 1-5, par. 0043 lines 8-12] and including a battery current measuring device [par. 0030 lines 1-6], and a terminal at which a generator is connectable [Fig. 2, the generator/alternator connects to either the battery positive terminal 16 or any of the power connectors 96-110; par. 0034]; one of a battery disconnecting switch [Fig. 2, cutout switch assembly 58; par. 0031] and a battery disconnecting fuse [Fig. 5, any of fuses 70; par. 0008 lines 1-5; par. 0011 lines 1-4; par. 0033] situated between the battery and the terminal; a control unit for power management [Fig. 5, energy management module 56; par. 0030] of the vehicle electrical system; at least one supply output for supplying power to the loads [pars. 0033-0034]; a fuse module [housing portion 18 contains fuses 70, as shown in Fig. 2] having an input, a plurality of supply outputs, and a plurality of fuses [Fig. 2, fuses 90, 92, 94] that connect the plurality of supply outputs to the input [par. 0033]; wherein a terminal of the integrated module is connected to the input of the fuse

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module, and wherein the plurality of supply outputs of the fuse module provide power to the plurality loads [Figs. 1 and 2, pars. 0031-0033], wherein the integrated module further includes an electronics unit for **at least one** of diagnosis of the generator [Figs. 1 and 5, 56 in conjunction with 58; par. 0029 lines 1-3; **par. 0010 lines 1-5 teaches diagnostics of the battery, which is effectively the same as diagnosis of the generator**; par. 0043 lines 8-14; the output of the battery is regulated to provide an output in a safe range; beyond that range, the safety circuits shut the battery off to protect it].

Marusak does not disclose an electronics unit for regulation of the generator, or a detection arrangement for diagnosis of a state of at least one of the fuses.

Marusak and Larson are analogous vehicle electrical system modules for managing power.

Larson discloses the vehicle electrical system wherein the integrated module [Fig. 2, ESC 30 is a module] further includes an electronics unit for at least one of regulation and diagnosis of the generator [col. 3 lines 43-53 describes how ESC 30, in combination with other controllers, execute a battery management program that regulates and diagnoses the battery/ pack by making adjustments to the generator output. Since the battery is electrically connected to the generator, the generator's electrical output is also effectively diagnosed].

At the time of the invention it would have been obvious to one of ordinary skill in the art to add the generator regulation/diagnostics feature found in Larson's module to

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Marusak's module, for the benefit of providing an integrated means for the vehicle electrical system to regulate and diagnose the battery/generator, and so adjust the rate of charging as required. This is an important requirement for any type of vehicle that could conceivably impact human safety [such as an automobile] or lead to equipment damage [an overcharged battery could result in an explosion]. Diagnosing the generator's charging of the battery is important, as neglecting this can lead to battery overheating, sulfation, and reduced battery life- Larson, col. 1 lines 40-65; as well as potential battery explosion].

The combination Marusak and Larson do not disclose a detection arrangement for diagnosis of a state of at least one of the fuses.

Marusak, Larson, and Hatton are analogous vehicle electrical system modules for managing power.

Hatton discloses an integrated module [Fig. 1, blown fuse indicator module 10] with a detection arrangement for diagnosis of a state of at least one of the fuses [col. 2 lines 47-64; col. 4 lines 18-63].

At the time of the invention it would have been obvious to one of ordinary skill in the art to add Hatton's blown fuse indicator module to the combination of Marusak's and Larson's fused power management module.

The benefits for doing so would be to enhance convenience to the user in locating the blown fuse [Hatton, col. 1 lines 24-36], and allow the user/technician to be more effective in diagnosing malfunctions, which would result in reduced downtime for the vehicle and reduced cost to the user.

The following applies to the placement of ALL of the limitations/features into one integrated module: the concept of taking multiple commonly known automobile components/modules/features and forming them into one integrated module is in general only a simple modification in the automotive arts [particularly considering the widespread use of modularization in this industry]; since it has been held that forming and putting together into one piece an article which has formerly been formed in two pieces involves only routine skill in the art. ***In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 [CCPA 1965]. See MPEP 2144.04.***

With respect to claim 2 [Original], Marusak discloses that the arrangement for detecting the state of charge of the battery includes a battery current meter [par. 0030].

With respect to claim 3 [Original], Marusak discloses a battery voltage sensor located outside the integrated module [par. 0041, input pins for voltage sensing, from outside the module], wherein the arrangement for detecting the state of charge of the battery includes a battery voltage meter that cooperates with the battery voltage sensor. [Voltage meters for the visual determination of battery/charging voltage levels are conventional to the automotive industry, as illustrated by Baker (U.S. 5737168), col. 2 lines 19-36].

With respect to claim 6, [Currently Amended] Marusak discloses a switch [Fig. 2, cutout switch assembly 58; par. 0031] provided within the fuse module [housing portion 18 is the module that contains fuses 70, as shown in Fig. 2], wherein the switch enables selective connection and disconnection between at least one of the plurality of fuses and an associated load.

With respect to claim 7 [Original], Marusak discloses a plurality of fuses; wherein the integrated module has a plurality of supply outputs, and wherein the plurality of fuses connect the plurality of supply outputs to the battery, whereby power is provided via the plurality of supply outputs to the plurality of loads [pars. 0031-0033].

With respect to claim 8 [Original], Marusak discloses a switch [Fig. 2, cutout switch assembly 58; par. 0031] provided within the integrated module, wherein the switch enables selective connection and disconnection between at least one of the plurality of fuses and an associated load [pars. 0031-0033].

With respect to claim 10 [Original], Marusak discloses a relay [Fig. 1, relays 64-66]; wherein the integrated module has a terminal for connection to a starter of the vehicle [Fig. 1, battery positive terminal 138; or any of power feed output connectors 80, 82, 84, 86 in Fig. 2], and wherein the relay is situated between the battery and the terminal of the integrated module.

With respect to claim 11 [Original], Marusak discloses a communications interface [par. 0030, CAN interface] for the integrated module; wherein the control unit for power management is in contact with at least one of the plurality of loads of the vehicle electrical system and an additional control unit [par. 0029, energy management subassembly 56] of the vehicle via the communications interface for the integrated module.

With respect to claim 12 [Original], Marusak discloses that the communications interface is a bus interface [par. 0030, CAN interface is a bus interface].

With respect to claim 15 [Original], Hatton discloses that the integrated module further includes a detection arrangement for diagnosis of a state of at least one of the fuses [Fig. 1, blown fuse indicator module 10; col. 2 lines 47-64; col. 4 lines 18-63].

With respect to claim 16 [Original], Marusak discloses that the integrated module further includes a DC-to-DC converter [par. 0043].

With respect to claim 17 [Original], Marusak discloses that the integrated module further includes at least one circuit breaker [Fig. 2, cutout switch assembly 58; par. 0031].

With respect to claim 18 [Original], Marusak discloses that the circuit breaker enables selective connection and disconnection of one of a single load and a plurality of loads from the integrated module [Fig. 2, cutout switch assembly 58; par. 0031. This switch can connect and disconnect single or multiple loads, depending on how many loads are (one or more) are connected to the power management module 10].

With respect to newly added independent claim 19: this claim combines the previously rejected claims 1, 2, 3, and 7 into one claim. Therefore the **combination of Marusak in view of Larson in further view of Hatton** used to reject claims 1, 2, 3, and 7 above apply to claim 19 equally.

With respect to newly added claim 20: this claim combines the previously rejected claims 16, 17, and 18 into one claim. Therefore the **combination of Marusak in view of Larson in further view of Hatton** used to reject claims 16, 17, and 18 above apply to claim 20 equally.

With respect to newly added claim 21: this claim recites the previously rejected limitations of claim 6. Therefore the **combination of Marusak in view of Larson in further view of Hatton** used to reject claim 6 above apply to claim 21 equally.

With respect to newly added claim 22: this claim combines the previously rejected claims 10 and 11 into one claim. Therefore the **combination of Marusak in view of Larson in further view of Hatton** used to reject claims 10 and 11 above apply to claim 22 equally.

Response to Arguments

Applicant's arguments filed 10/03/2008 have been considered but they are not persuasive. New arguments not responded to previously are addressed below:

Applicant comments on page 8 that it is a measured battery condition does not provide a direct indication of a condition of a generator, because another component of the vehicle's electrical system may cause adverse changes to the measured battery condition. This point is well-taken, and it is understood that there are potential scenarios where a short circuit between the battery and the measuring device may result in the "adverse change" mentioned above, and would consequently not be an accurate indication that the generator itself had malfunctioned. However, there are equally numerous scenarios (if not more) where the adverse battery condition could be caused by in internal short in the generator's windings, a shorted diode in the generator's rectifier, a grounded generator armature/field winding, or a failure in the generator's output regulator. All of these are highly common faults that occur in vehicle electrical

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systems, as one of ordinary skill in the art well knows, and any of them would result in adverse battery measurements. One of ordinary skill in the automotive arts

unquestionably knows that a bad battery is an indication of a bad generator.

Additionally, there is almost always more than one fault that can be the underlying problem for an electrical failure. Therefore the argument that there could be other faults that potentially skew the battery measurement and the subsequent indication that the generator is malfunctioning is unpersuasive. The examiner believes this interpretation is consistent in view of the doctrine of broad and reasonable interpretation, particularly in view of the breadth of what is actually claimed in independent claims 1 and 19; and the knowledge available to ordinary skill in the art.

Applicant comments on page 8 that measuring the output of the generator is not the same as diagnosing the generator itself. It is understood that the characteristic(s) of the generator being diagnosed is/are electrical in nature. Therefore it is entirely appropriate to measure the output of the generator in order to accomplish said diagnosing. This interpretation is reasonable, and consistent with the specification; unless applicant is intending to diagnose physical/mechanical problems of the generator, such as cracks, winding mechanical integrity, pole shoe shift, etc.

All other arguments are substantial repeats which have previously been responded to. As the examiner's position is already of record, no further comment is deemed necessary.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RICHARD V. MURALIDAR whose telephone number is (571)272-8933. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Akm E. Ullah can be reached on 571-272-2361. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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